IN THE SPECIFICATION:

On page 6, please amend the paragraph appearing at lines 4-20 as follows:

A method and apparatus for characterization of a thermal response of giant magnetoresistive (GMR) sensors in magnetic read/write heads is provided. The method and apparatus make use of a probe to measure temperatures at a base and a tip of the probe. With the method and apparatus, the temperature of the magnetic shields of the read/write head is reduced to a temperature lower than the probe temperature. A current is then applied to the GMR sensor to increase the temperature at an air bearing surface until the heat flow through the probe is zero, or substantially zero. The amount of current applied, the resistance of the GMR sensor, the magnetic shield temperature, and the ambient temperature are used to calculate the thermal conductance of the dielectric material in the read/write head. The thermal conductance is then utilized to estimate the signal to noise ratio of the GMR sensor and thereby determine a maximum bandwidth of the read/write head.

Please amend the paragraph appearing on page 22, lines 8-20 as follows:

After calibration, the probe may be used to thermally characterize the GMR sensor of the read/write head. **Figure 12** shows how the probe apparatus of the present invention is applied to the magnetic head of **Figure 3A** to perform thermal characterization of the GMR sensor at the tip of the magnetic head. The thermal characterization method exploits the $\Theta = 0$ condition at the probe tip to measure the surface temperature. Under this condition, or when the heat flow Θ is substantially zero, there is no temperature drop across the interface between the probe tip and the read/write magnetic head. The probe tip is used on the air bearing surface of the read/write magnetic head to measure temperatures and determine heat flow through the probe.

Please amend the paragraph appearing on page 22, line 28 to page 23, line 6 as follows:

The current through the GMR sensor 1230 is then increased so that the air bearing surface (ABS) warms up and a loci of points on the ABS under the magnetic head attains the condition $\Theta = 0$ when $I = I_l$. The heat flux Q_p through the probe tip is zero, or substantially zero, and $T_t = T_{gmr} = T_n$ (or $T_t = T_{gmr} = T_n + \Delta T_l$ if the laser is ON) on this loci (T_{gmr} is the temperature of the GMR sensor). These contours can be traced for different values of I and T_b and the entire temperature/current behavior can be obtained as shown in Figure 13.